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Radun, Igor

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Original Article

Suicide by crashing into a heavy vehicle: a focus group study of professional drivers

Igor RADUN[1, 2], Inkeri PARKKARI[3], Jenni RADUN[4] and Helinä HÄKKÄNEN-NYHOLM[1, 5]

[1]Department of Psychology and Logopedics, Faculty of Medicine, University of Helsinki, Finland
[2]Stress Research Institute, Department of Psychology, Stockholm University, Sweden
[3]Finnish Transport and Communications Agency Traficom, Finland
[4]Built Environment Research Group, Turku University of Applied Sciences, Finland
[5]EMDR Therapy Center Mementos Ltd, Finland

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Abstract: Professional heavy vehicle drivers can experience a traumatic event at work when suicidal drivers deliberately crash into their vehicles or a pedestrian jumps in front of them. This study adopts a qualitative approach, aiming to gain an understanding about the psychological and other consequences that these crashes have for this occupational group. We organized a semi-structured focus group meeting with six drivers who reported experiencing a deliberate crash into their vehicle. The meeting was moderated by two psychologists. The participants reported that avoiding the crash was difficult. These events can have long-lasting effects on drivers' well-being although individual differences in the response to the event and coping strategies do exist. Participation in our meeting was regarded as a positive experience. This encourages us to believe that organizing similar meetings that allow drivers under the supervision of professionals to share their own experiences with those who experienced similar events, could perhaps be one way of providing support to such drivers who experienced a traumatic event at work.

Key words: Injuries at work, Posttraumatic stress disorder (PTSD), Violent suicide, Driver suicide, Self-destruction, Motor-vehicle crashes

Introduction

It has long been known that some crashes with heavy vehicles are in fact deliberate, caused by self-destructive motor vehicle drivers and pedestrians. As we previously noted[1)], much research on this topic has been devoted to investigating "the scope of the problem and how to adequately distinguish suicides from 'normal' crashes", and identifying risk factors and groups but leaving professional heavy vehicle drivers out of the research focus. For example, two literature reviews on the topic of road suicides have not given any special attention to heavy vehicle drivers involved as the opposite party in suicide collisions[2, 3)].

To the best of our knowledge, our three recent studies are the first addressing this neglected issue. In the first study, we analyzed road suicides (N=138) using in-depth crash data with a focus on professional drivers[1)]. In the second, we surveyed on two occasions (about one month and one year after the event) heavy-vehicle drivers (N=15) involved in a suicide crash[4)]. Finally, we surveyed a representative sample of Finnish heavy vehicle drivers (N=863) regarding their views and opinions about road suicides[5)].

In short, although heavy vehicle drivers in almost all

*To whom correspondence should be addressed.
E-mail: igor.radun@helsinki.fi

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cases survive such deliberate crashes[1, 2], the event can have a long-lasting negative effect on some of them[1, 4]. It can lead to physical injuries, sick leave, posttraumatic stress symptoms, or even compel a career change[1, 4]. Furthermore, heavy vehicle drivers find it difficult, often almost impossible, to avoid a collision if the other party deliberately steers his or her vehicle into their own vehicle[1, 4, 5]. Finally, professional heavy drivers in general perceive road suicides to be an occupational risk[5].

Unlike our three previous studies, in this study we adopted a qualitative approach, aiming to gain a richer understanding about psychological and other consequences following the involvement in suicide crashes for this occupational group. In 2019, we organized a semi-structured focus group meeting with six drivers who reported experiencing a deliberate crash into their vehicle. We applied a simple descriptive narrative analysis method and complemented it with some descriptive statistics regarding road suicides in Finland.

Subjects and Methods

Recruitment

The participants were recruited with the help of three professional drivers' organizations: *Rahtarit*, Finnish Transport and Logistics SKAL, and the Transport Workers' Union AKT. They invited potential participants on our behalf by sending an email (with a link to our online recruitment survey) to their mailing lists, or by mouth-to-mouth communication. The survey included only a few questions such as how confident the driver was that their crash had been caused deliberately and whether the crash was investigated by a multidisciplinary investigation team of the Finnish Crash Data Institute (OTI) (for their work, see[1]). Twenty drivers expressed an interest by filling out our short online recruitment survey (19 drivers), or by calling one of the authors (one driver). We selected seven participants based on their answers to the previously mentioned questions (the priority was given to drivers who were very confident their crash had been deliberately caused and later investigated by OTI team), and proximity of their residence place to Helsinki, where the meeting was held, ensuring they could leave their home in the morning and come back home from the meeting in the evening. Six of the seven invited drivers participated in the meeting.

The meeting

The meeting consisted of two parts with an approximate duration of 1.5 h each. Between the parts, we had a break of approximately twenty minutes. During the break, the participants were offered snacks and coffee. Before the meeting the participant had a free lunch, signed a consent form, and filled in a short background survey. The survey included several questions about driving exposure, their crash, and the Impact of Events Scale-Revised (IES-R)[6]. This scale measures the degree of subjective distress (i.e., posttraumatic stress symptoms) during the past seven days in relation to a traumatic event. It has 22 items rated on a scale from (0) "not at all" to (4) "extremely". The higher the score, the higher distress; total score ranges from zero to 88 and a cut-off score is 33. This cut-off score provides the best accuracy for a probable diagnosis of posttraumatic stress disorder (PTSD)[7].

The moderators

The meeting was moderated by two authors: IP, a licensed psychologist with twenty years of experience in road crash investigations, and HHN, a licensed psychotherapist and university researcher with a doctoral degree in psychology. The first author (IR) was also present in the meeting but did not participate in the discussion.

Discussion topics

The meeting was semi-structured with six main topics: pre-crash knowledge about suicides by crashing into heavy vehicles; the crash itself; just after the crash; support and coping after the crash; you as a heavy vehicle driver following the crash; and general views about suicide by crashing into a heavy vehicle. However, as stated in the aims of the study, we were most interested in the psychological and other consequences following their crashes.

The participants

The participants were all males with three drivers in the age group 60–65, two between 45–50, and one between 25–30. Five were driving a truck and one a bus at the time of their crash. One of the participants had an IES-R score above the cut-off score, while 4 others had scores above 20.

Recording and transcribing of the data

Only audio data was recorded. Each participant (two moderators and six drivers) had own microphone so in addition to one master audio channel, eight separate audio channels were recorded. This was done to ensure the accuracy of who had said what. It was also necessary for the analyses in order to ensure that cited sentences did not come from only one or two persons. Two research assis-

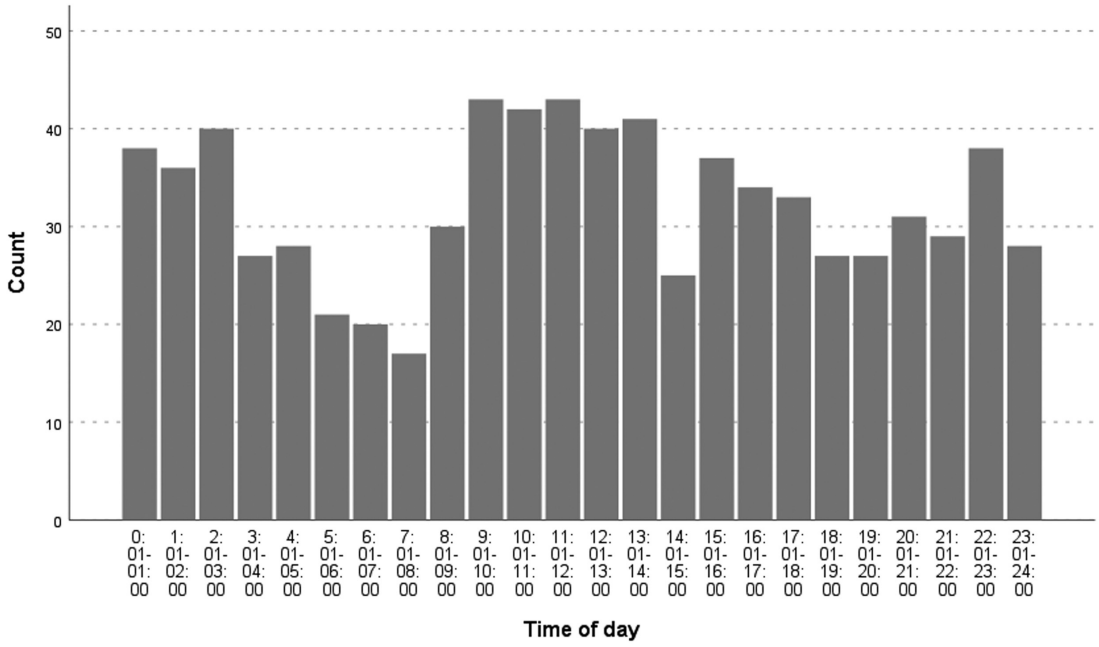

Fig. 1. Time of day distribution of motor vehicle suicide crashes in Finland (N=775; 1984–2018; data also include single-vehicle crashes).

tants transcribed the audio data. Both of them transcribed half of the audio data and then listened to the other half while crosschecking the transcribed data the other assistant had done. This ensured that the transcription process was reliable.

Analysis and additional data

Because we dealt with a poorly researched topic, we adopted a simple descriptive narrative analysis method[8]. In order to complement the discussion regarding the characteristics of road suicides, we used data from the Finnish Crash Data Institute (OTI) and produced several figures and tables about road suicide statistics. These data were not presented in our previous studies. OTI multidisciplinary teams investigate every fatal road crash in Finland for traffic safety purposes (for more about their work, see[1]).

Ethical considerations and reimbursement

The study protocol was approved by the University of Helsinki Ethical Review Board in Humanities and Social and Behavioral Sciences (statement 5/2019). The participants received a reimbursement of 200€ and their travel costs were covered. They were briefly debriefed at the end of the meeting. They were also given an opportunity to call moderators afterwards, which one of the participants did.

Results and Interpretation

Pre-crash knowledge about suicides by crashing into a heavy vehicle

All six drivers reported to us that they had been aware of the suicide by crashing into a heavy vehicle phenomenon; however, none of them reported experiencing any specific worries that it might happen to them before it actually happened. During discussion on this specific topic, one of the participants reported knowing a driver who had experienced a suicide crash. Regarding their own crashes, one of the drivers was surprised that his crash happened during the day. However, that is actually not surprising given the statistics (Fig. 1). He said:

"*No, I haven't personally known anyone like that…But already then [the speaker is an experienced driver] there was talk about those people in debt doing it at night and I had always thought of it as something that happened sometime at night, like when all the cards had been turned around and life had gone wrong in some way. I couldn't in any way expect it to happen to me around midday, like I had the idea that they happen at night, in the darkest hours of the night when a person sort of snaps. However, snapping doesn't look at time or place for when it happens".*

Another driver, on the other hand, was not surprised his crash happened in one of the darkest months in Finland.

However, most road suicides as well as suicides in general in Finland occur less often during the winter months[9, 10] (Fig. 2).

"*You knew to think about it then because it was quite dark and rainy then as well, and you knew that it was the depression season. That people might have something, some stuff, so it has been in the back of your mind that way*".

One of the participants was surprised that those who choose to die in a traffic suicide would choose to do so by jumping under a bus.

"*Yes. It has been talked about, not in our circles though. I had an idea that it's the trucks*".

Data from our previous study show that after excluding single vehicle suicide crashes, a bus was the opposite party in only two out of 158 suicide crashes (1.2%) over a period of six years[1]. Regarding pedestrian suicides, the proportion of buses is somewhat larger (7.3%) although in absolute terms it means only 8 cases over a period of 21 yr (Table 1).

The crash itself

All drivers reported difficulties in avoiding their crash, confirming the finding from all of our three previous studies. These are the words of three participants in the current study.

"*The speed limit on that part of the road was 80 km/h and according to police, the other car came at a speed of 165 km/h. ... You can understand that if you're driving at 81–82 km/h, which was my speed, and when the other driver starts to swerve two to three dash lines away from me, that I didn't have time to realize it, other than the explosion*".

"*And it was done like that, three times the driver changed direction and I tried to swerve, but the road guard rail was there on the side, so I couldn't get any further out of the way. So it was going to happen anyway, case closed, and then the driver died*".

"*A man walked across and… there was a bit of slush, I swerved into the middle of the road but the guy had such good legs that he still jumped into the middle of the windscreen*".

Two drivers reported noticing the erratic behavior of the other vehicle and were expecting the other party would correct their trajectory, but instead the other party surprised them with a more sudden movement toward their vehicle.

"*That car that was coming there and first I thought like are they fiddling with their phone there, because the car was going a bit like that. And then like a few seconds after, I was like 'oh shit, it's at me', then I swerved to the right, and I remember feeling the rumble stripes, like going across them to the road edge but none of that was enough. I thought about it afterwards, if I had swerved left, that would have surprised him/her, but that's a little bit weird for a solution, like he/she had made their decision now anyway...*"

"*I noticed that the car was passing the oncoming traffic in a weirdly. I was like, it will go back there and I slowed down a bit and went toward the roadside, so that it will fit there for sure, but all of a sudden, I noticed that damn it, it's driving at me. I managed to break a little bit, and then, I am not a hundred percent sure about this, but afterwards I recalled a memory that a bit before it smashed, I had decided that 'you will definitely not drive under the wheel' and I turned the truck a bit so that it drove into the middle of my front*".

This is also similar to the reports given to the multidisciplinary teams described in our previous study[1]. We wrote: "In about 20% of cases (N=24), the truck drivers

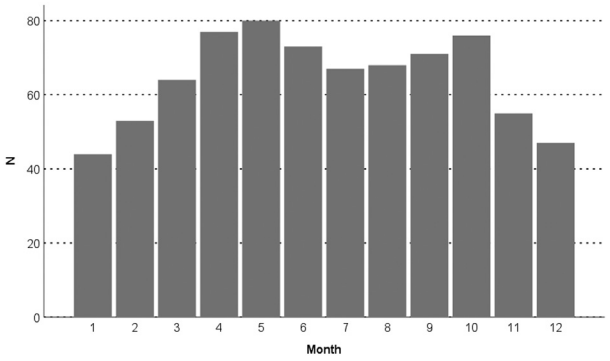

Fig. 2. Monthly number of motor vehicle suicide crashes in Finland (N=775; 1984–2018; data include also single-vehicle crashes).

Table 1. Pedestrian suicides by the type of opposite vehicle (1997–2018)

The opposite vehicle	N (%)	Trains excluded
Passenger car	15 (13.8%)	15 (15.8%)
Van	3 (2.8%)	3 (3.2%)
Bus	8 (7.3%)	8 (8.4%)
Truck & truck + trailer	67 (61.5%)	67 (70.5%)
Motorcycle	1 (0.9%)	1 (1.1%)
Tram	1 (0.9%)	1 (1.1%)
Train*	14 (12.8)	-
Total	109 (100%)	95 (100%)

*Under the train incidents are investigated by OTI teams only if they happen at an official crossing (a road or pedestrian/cycling path).

noticed the suicidal driver driving strangely (e.g., drifting, left tires on the central line) and typically expected them to correct the path of their vehicle. Instead, the driver turned abruptly, leaving the truck driver hardly any time to react".

Just after the crash

Despite the large mass differences between heavy vehicles and passenger cars, trucks might be so severely damaged that their drivers might have difficulties in getting out. Three out of the five truck drivers reported such difficulties. When they (finally) got out of their vehicles, our participants reported checking the crashed driver if no other person had arrived at the scene.

One driver said:

"*And a bit before I got to the car, the emergency number answered. And I was trying the driver's pulse, and there was no pulse there, couldn't have been, it looked so bad. I still checked, because they asked me to, whether there were others there [in the car] and [sighs] and there was no one else there*".

Two drivers reported hesitation in checking the crashed driver as others had already arrived. One of them said:

"*There were so many people that I wasn't even interested in going to see anything, although I asked whether there were more people in the car*".

The truck driver was of opinion that not seeing the car driver in the wreckage was something that helped him later in coping. He said:

"*What probably saved/helped me during the process was that I didn't have to go to see [the victim] because another person at the scene made a phone call… That guy probably saved [me] so much…I couldn't have been able to go anyway, I think that probably saved me, you forget about it quicker maybe*".

According to the law, anyone present has to help, so if there is nobody else at the crash scene, checking the status of the other driver might bring additional trauma. Witnessing the death or serious injury of another person or seeing a dead body or body parts is a traumatic experience and might lead to the development of PTSD. The chances of the development of PTSD are higher if a road crash involves a fatality[11]; however, we are unaware of studies examining whether there would be a difference in experiencing PTSD between participants involved in a fatal crash who saw or did not see a dead body.

Support and coping after the crash

Regarding posttraumatic symptoms, as mentioned, one of the participants had an IES-R score above the cut-off score; however, this itself is not sufficient for a PTSD diagnosis although this cut-off score has good diagnostic accuracy[7]. Four other participants had scores above 20 although all had had their crashes more than 2 yr ago.

Drivers reported different coping strategies concerning the event, but they all pointed out the importance of the support that comes from family members, friends, co-workers or professional counseling:

"*Well the people at work. And a good friend with whom I started setting off and doing all kinds of things. So it's like, those kind of people, even though we didn't talk about it but they kind of guessed what I felt and were just like supporting, so it's good to have a circle [of people], if you're all alone then you're in quite a bad, bad place*".

"*I went to talk to a psychologist, for about three years we've been going over it from time to time. Soon we're going to try to get over this thing. So no medication, other than the sleeping pills, I got through it by talking*".

The difference between friends' and professional support was mentioned. Close friends were mentioned more as emotional support while the professionals' role is supposed to focus on dealing and solving issues.

"*I started noticing how a good friend doesn't ask too much, but just like, like they know about it but they don't ask anything. If I don't say anything then they won't ask either, you like notice who really is a friend*".

"*Well, the professionals have to kind of ask as well, and find a way to draw the text out of you that they should be getting out*".

"*Yeah, but like a person who isn't otherwise [involved] but is just curious about what happened, and then they'll be telling the weirdest things in a social situation, that annoys me*".

Two drivers underwent long psychotherapy; however, it became apparent that it is not always easy to get professional support. One driver reported difficulties in getting the support from a professional organization of which he was a member. Another driver mentioned discussions among heavy vehicle drivers dissatisfied with the support they get compared to the support train drivers receive following their involvement in similar incidents:

"*…they were complaining that VR (Finnish national railways) has such a good system that train drivers are immediately directed to support groups while the field of road transport doesn't have anything. It basically hasn't changed at all in ten years*".

The third driver, who was employed in a larger company, however, received help comparable to that given to train drivers:

"*And, of course what was probably an advantage for me as well was that at work they had informed the occupational health doctor, who then contacted me*".

All drivers were positive about their participation in our focus group meeting.

"*I have wondered about how others have managed with this thing, when they haven't been in the discussions, but now I know that everyone has gotten over it somehow*".

"*Yeah, and to see that it [things like this] don't look at age, it can happen to anyone" [others agree] …"It doesn't look at the kilometers*".

"*It's been a rewarding day, and it's been interesting to listen to different experiences. Driving as well and everything, that others have also had, not just [laughs] that you would have just jumped up behind the wheel and gone and not cared about anything, so it has been really nice*".

"*This isn't [making me]anxious; this is good [others agree] when the table is full of similar people, so you know that there are others too carrying the burden*".

"*That there is a mental connection there that helps you solve your problems, a place where you can open up*".

Even the driver who had a crash many years ago and who in his mind coped well without any therapy or special efforts was of the opinion that similar support groups would be beneficial.

"*Now that I like start listening to others' experiences, I think that maybe it would be best when something like this happens that you get a support person and then you continue driving to build up new experiences without incidents. Like I remember as well that the first week was quite challenging to drive like you were constantly on the lookout and looked at each possible oncoming car, but it's not like that anymore*".

Finally, like this driver, so too all the others mentioned the need to continue driving as soon as possible. There is always a risk, as Stergiopoulos *et al.* write[12], that "workers are therefore left in a vicious cycle, where their PTSD symptoms keep them from working, and their absence from work keeps them from overcoming the disorder".

You as a heavy vehicle driver following the crash

The increased attentiveness while driving after the crash is something that all drivers mentioned.

"*But yeah, on the road with others around so you are all sharp then, maybe for two or three months at least, even a small movement from the opposite side, then you were immediately like...*"

"*I had a long career of professional driving behind me…but it does leave a mark that you couldn't for a long after that like, if someone came even close to the center line, I got scared. That it came like, let's say that my attention on traffic focused on following the oncoming drivers a lot more than before. So you noticed very much that you started to look out for about everything, if someone is coming toward you and is fiddling with their phone there, you got scared immediately, like what is happening there*?"

"*Yes you do remember it every time when you drive past the scene of the accident, you remember it every time, I saw the place so clearly then, trees are growing there now, just a bit crooked though, but [laughs], that's not in your mind for a moment each time*".

"*And, well, there's a lot to it, that driving like terrified me. I used two hours for a half an hour's drive with my own car [laughs]. I practically stopped at every pedestrian and then I stopped going, it took me eight months. I like fought against [the idea] that I wouldn't drive a car or drive professionally anymore*".

"*At least for me, I still notice if I'm on a bigger road and I see that on my right side a car is driving fast up to a junction, so at that point I like [say], let's take it easy, let's be careful, kind of. That's like, still. But otherwise it hasn't affected the driving itself too much*".

In addition to increased attentiveness to other traffic and the fear that someone might crash into their vehicle again, anger toward the 'stupid' behavior of other drivers was mentioned and discussed. Two drivers were very specific and said that such anger had not existed before their crashes.

"*Well, personally it's mostly like, I feel like nowadays angry about stupid behavior. More than before. Mostly when someone is like speeding completely recklessly, in my case that makes me as angry as can be*".

"*When you notice that someone is right there on your back bumper, you're like 'get the hell away from there, if someone comes there [in front of me], you're very quickly into my back'. Then like 'I don't fucking care if you die there. Not my problem'. Like that*".

Also the awareness about the drivers' own profession has sharpened. Two drivers were very specific in this respect:

"*Well maybe I have noticed it a bit in myself that now that I have processed this in therapy, it has become clear to me that I like try to do my job just right. Before I might have just been like let's just do this job and go home, now I'm a bit too much of a 'perfectionist' at times*".

"*I have just noted through the years that the traffic just keeps getting crazier and crazier, but, there's just, maybe it's just like… how could I say, like as there is professional*

traffic there, you hope you're as good as possible".

On the other hand, strict rules about rest and working hours are something that nowadays produces a lot of stress while performing their job.

"*Like the driver doesn't get to take a break at a good time, instead you have to do the job in certain slices and then, still do a bit more until you get to take a break… . So these kind of things stress you even more nowadays than a crash like that [others agree]. So you have to look at the clock all the time, which just isn't right*".

One of the questions asked by the moderators was whether the event had a broader impact on them as persons.

"*It did leave a mark that I smoked the second cigarette in my life and from there the smoking began. My friends criticized me for starting to smoke in my early twenties, maybe the stupidest decision ever*".

"*But something like that does wake you up like, at least it gives some kind of a strength, that you learn to handle hard things, basically like a small issue doesn't stress you out that much because no one lost their lives [others agree]. That's like the best, some small issue, you get it like this wasn't a bad one, you survive, you've survived from worse than this*".

"*But in a sense I have survived well, that it hasn't, it hasn't been present in my daily life, that of course now that we start talking about it, it makes me emotional quite a bit*".

General views about road suicides and their prevention

The participants were in general pessimistic whether suicides by crashing into a heavy vehicle can be prevented. One of the participants said they will happen "as long as humans drive vehicles." The general prevention of suicides was mentioned as an important measure and also justifiable given the cost of road suicides to society:

"*…if you have like a problem with alcohol or these kinds of things, you should get professional help early enough, before trying to 'solve' it on the road*".

"*About the costs side, at least in my case, the police investigation took almost two years before they gave any kind of papers. So there is a cost for society there as well*".

The participants were aware of the sensitivity of how suicides are reported in the media and the possible association between suicide reporting and suicides, which is an issue that has been extensively studied (see e.g. the recent meta-analysis by Niederkrotenthaler *et al.*[13]).

"*It should probably be that you're not allowed to publish it as a suicide, but just as an accident, because that could plant the seed of 'hey, there's a way for me to escape this shitty world'*".

"*It's gotten better a bit that nowadays it only says that they drifted in front of an oncoming car for an unknown reason [others agree]*".

Nevertheless, they were wondering whether those who decide to die by crashing into a heavy vehicle think about their drivers:

"*I think that you can affect through education but like, the general discussion about it as well, in the situation, if someone decides that they have to drive in front of a truck or a bus, or jump under a train or something. There should be a lot of discussion about that, so that no one would get like a …, that there's a person who has feelings and they can get hurt [in the crash?]. Like does the person think about the driver at all*?

"*Yeah, I guess the person is in a state where they imagine that the only thing that is coming is cold steel*".

Although the participants knew about suicides by crashing into a heavy vehicle, several of them wondered whether something could be done to educate heavy vehicle drivers about them:

"*Of course it would be good to educate all heavy vehicle drivers about facing it and predicting it. So that they could get a bit of education on what this profession is like and what you might come across*".

Discussion

In this focus group study, we confirmed the findings from our previous studies regarding the difficulties heavy vehicle drivers face in avoiding a deliberate crash and the long-lasting consequences these events can have on their well-being. Because preventing these crashes is very much out of the control of heavy vehicle drivers (i.e., little time to avoid a deliberate crash) and the prevention focused on suicidal drivers requires large societal actions ("little is known currently about road traffic suicides in comparison to other methods of suicides")[14], perhaps the focus should be on how to help these drivers to cope following such traumatic event. These deliberate crashes are traumatic not only because of the death of another person but because of their nature, which might include extreme forces following a frontal crash with a vehicle travelling at high speed (e.g., 165 km/h) or several unsuccessful attempts to 'escape' from a driver who matches your corrective movements.

The psychological trauma might persist for years. It can manifest itself through high (er) posttraumatic symptoms, but also some drivers might exhibit more specific anger

towards others' 'unsafe' driving. The association between anger and PTSD is well established[15]. Our participants were conscious and talkative about their feelings, but there is a question what happens if individuals are not able to recognize and control such feelings when driving their heavy vehicles on a daily basis. In our previous study[4], only one out of the four heavy vehicle drivers with high (well above the cut-off score) IES-R scores measured at about one month after their crash received psychological help[4].

Suicides by crashing into a heavy vehicle are not ordinary road crashes. Because these heavy vehicle drivers were injured at work following a deliberate action of other people, they should receive support similar to what train drivers routinely receive. However, drivers involved in these crashes are actually covered by two types of obligatory insurance (Motor liability insurance and Occupational accident insurance), which should in principle provide sufficient support including vocational and functional rehabilitation. Perhaps, then, the question is more about informing them about their rights and helping to achieve them through a standardized procedure, which might start with the obligatory visit to an occupational health doctor.

Limitations

Before offering concluding remarks, the limitations of this study should be discussed. Our participants were not randomly selected so "volunteer bias" is possible as in any similar study. However, our impression was that the willingness to talk and share their experiences was the main motivation for their participation in our study rather than the seriousness of posttraumatic stress symptoms. Furthermore, these symptoms measured by the IES-R[6] were perhaps contaminated (i.e. increased) because the participants volunteered for our study several weeks before the meeting and the completion of the scale that measures the degree of subjective distress over the previous seven days. Therefore, volunteering for our study and filling in an online recruitment survey probably brought back some memories about the event prior to filling in the scale on the meeting day. On the other hand, if we do assume that our volunteers came from those who suffered from more serious psychological effects, their positive feedback about our focus group meeting would then mean that such discussion group meetings might be beneficial for drivers involved in similar crashes. It should be also stressed that we did not verify whether their crashes were indeed caused by a suicidal driver; however, the information provided by the drivers leave no doubt about it to us. Finally, since we did not apply any specific type of analysis, the extracted sentences and issues perhaps reflect more our preconceptions about the subject rather than the most important issues discussed in the meeting.

Concluding Remarks

There are individual differences in the response to the event and the way drivers cope. However, all drivers stressed the need to continue driving as soon as one can, while also seeking support from close friends and family members as well as professional help if needed. Talking helps in the coping process especially if it takes place in a secure environment. In this context, sharing one's own experiences under the supervision of professionals with those who experienced similar events, as in our focus group, was regarded as a positive experience. We believe that these drivers who experienced a traumatic event at work should be given every support they require for a successful return to their work duties that involve driving thousands of kilometers every year.

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